

IN THE CLAIMS:

Please substitute the following claims for the previous claims:

1. (Previously presented) A method of cleaning a surface of a substrate processing chamber component to remove process deposits therefrom, the method comprising sequentially the steps of:
 - (a) heating the surface comprising the process deposits to a temperature of at least about 150°C; and
 - (b) then rapidly cooling the surface comprising the process deposits to a temperature below about -40°C by at least one of (i) immersing the surface in liquid nitrogen, and (ii) spraying the surface with the liquid nitrogen, thereby fracturing the process deposits on the surface.
2. (Original) A method according to claim 1 wherein the surface comprises a first thermal expansion coefficient and the process deposits comprise a second thermal expansion coefficient, and wherein the first thermal expansion coefficient is at least 2 times the second thermal expansion coefficient.
- 3 - 4. (Cancelled)
5. (Previously presented) A method according to claim 1 wherein (b) (i) further comprises ultrasonically agitating the surface.
6. (Currently amended) A method according to claim 1 further comprising at least one of:
 - ~~(b)~~ (c) grit blasting the surface; or
 - ~~(e)~~ (d) cleaning the surface with a cleaning solution comprising HF and HNO₃.

7. (Previously presented) A method according to claim 1 further comprising heating the surface to a temperature of at least about 300°C.

8. (Original) A method according to claim 7 further comprising, after heating the surface, flowing a cool fluid over the surface.

9. (Cancelled)

10. (Original) A method according to claim 1 wherein the surface comprises a textured surface.

11. (Original) A method according to claim 1 wherein the surface comprises at least one of titanium, stainless steel, copper, tantalum and aluminum, and the process deposits comprise at least one of tantalum, tantalum nitride, titanium, titanium nitride, copper, aluminum, tungsten and tungsten nitride.

12-28. (Cancelled)

29. (Currently amended) A method according to claim 1 further comprising heating the surface to a temperature of from about 300°C to about 350°C.

30. (Currently amended) A method according to claim 1 wherein the surface comprises at least one of copper, titanium, stainless steel and tantalum, and wherein the method comprises heating the surface to a temperature of at least about 500°C.

31. (Previously presented) A method according to claim 1 comprising heating the surface to a temperature that does not exceed more than 75% of the melting temperature of the component surface.

32. (Currently amended) A method according to claim 1 further comprising heating the surface by temperature placing the component in a heating furnace.

33. (Previously presented) A method according to claim 1 comprising cooling the surface at a rate of at least about 50°C per second.

34. (Previously presented) A method according to claim 1 further comprising cooling the process deposits on the surface while maintaining the rest of the component at a relatively warmer temperature to increase the difference in the thermal contraction rates of the process deposits and component surface.

35. (Currently amended) A method according to claim 1 comprising cooling the surface ~~by spraying or rinsing the process deposits on the surface~~ with the liquid nitrogen while maintaining the bulk of the component at a relatively warmer temperature.

36. (Previously presented) A method of cleaning a surface of a substrate processing chamber component to remove process deposits therefrom, the method comprising sequentially the steps of:

- (a) heating the surface comprising the process deposits to a temperature of at least about 150°C; and
- (b) then cooling the surface comprising the process deposits at a cooling rate of at least about 50°C per second to a temperature below about -40°C by (i) immersing the surface in liquid nitrogen, or (ii) spraying the surface with the liquid nitrogen, thereby fracturing the process deposits on the surface.

37. (Previously presented) A method according to claim 36 wherein the surface comprises a first thermal expansion coefficient and the process deposits comprise a second thermal expansion coefficient, and wherein the first thermal expansion coefficient is at least 2 times the second thermal expansion coefficient.

38. (Previously presented) A method according to claim 36 wherein (b) (i) further comprises ultrasonically agitating the surface.

39. (Currently amended) A method according to claim 36 further comprising at least one of:
~~(b)~~ (c) grit blasting the surface; or
~~(c)~~ (d) cleaning the surface with a cleaning solution comprising HF and HNO₃.

40. (Previously presented) A method according to claim 36 further comprising heating the surface to a temperature of at least about 300°C.

41. (Cancelled)

42. (Previously presented) A method according to claim 36 wherein the surface comprises at least one of copper, titanium, stainless steel and tantalum, and wherein the method comprises heating the surface to a temperature of at least about 500°C.

43. (Previously presented) A method according to claim 36 comprising heating the surface to a temperature that does not exceed more than 75% of the melting temperature of the component surface.

44. (Previously presented) A method according to claim 36 further comprising cooling the process deposits on the surface while maintaining the rest of the component at a relatively warmer temperature to increase the difference in the thermal contraction rates of the process deposits and component surface.

45. (Currently amended) A method according to claim 36 comprising cooling the surface ~~by spraying or rinsing the process deposits on the surface~~ with the liquid nitrogen while maintaining the bulk of the component at a relatively warmer temperature.